

TRANSACTIONS OF THE ROYAL SOCIETY
OF SOUTH AUSTRALIA INCORPORATED

NEW GENERA AND SPECIES OF TROMBICULIDAE
FROM THE PACIFIC ISLANDS

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Eutrombicula gymnodactyla n. sp.

Fig. 1 A-F

Description of Larvae—Shape ovate. Length (engorged) to 450 μ , width to 300 μ . Scutum pentagonal, as figured, with the anterior margin lightly sinuous, posterior angle rounded. Sensillae ciliated on distal half, with the sensillae bases nearer to each other than to PL and placed slightly anterior of line of PL. Eyes

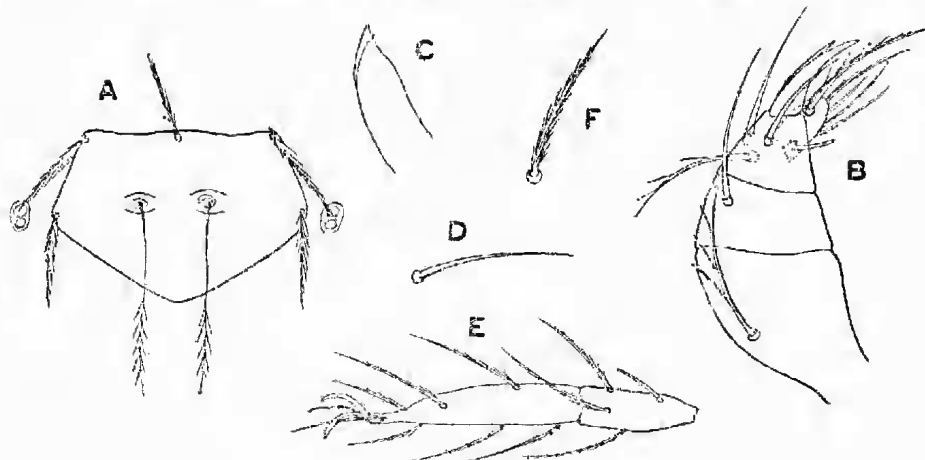


Fig. 1 *Eutrombicula (Ascariscus) gymnodactyla* n. sp. A, dorsal scutum (x500); B, palp in dorsal view (x860); C, tip of chelicera (x860); D, galeal seta; E, tarsus and metatarsus III (x450); F, dorsal seta (x860).

2 + 2, on distinct ocular shields, the posterior eyes the smaller. Chelicerae not serrated on inner (dorsal) edge, with the usual small apical tricuspid cap forming the apical tooth, a small subapical dorsal tooth, and a small subapical ventral tooth. Galeal setae nude. Palpi stout, tibial claw bifurcate, seta on palpal femur 2-3-branched; on genu nude, on tibia only the ventral seta branched; tarsi short, with basal and subapical rods, and five or six ciliated setae, one of which is much stronger than the rest and over-reaches the tip of the tibial claw by the claw's length.

Dorsal setae 24 in number, to 36 μ long, ciliated and arranged 2.6.6.4.4.2. Ventrally with a pair of branched setae on gnathosoma, one on each coxa, a pair between coxae I and between coxae III, thereafter uncertain as all specimens

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were heavily infested with sporozoa but approximately to 20μ in length. Legs: I 210μ long, II 195μ , III 210μ ; tarsi I and II with the usual dorsal sensory rods; tarsi III without any long nude seta.

The Standard Data (see Womersley and Heaslip 1943) in microns for the type and three paratypes.

	Mean	Standard Deviation	Theoretical Range	Observed Range	Coeff. of Variation
AW ...	45.75 ± 0.75	1.50 ± 0.50	41.25—50.25	45.0—48.0	3.2
PW ...	60.0	No variation recorded			
SB ...	16.5 ± 0.87	1.73 ± 0.61	11.3—21.7	15.0—18.0	10.5
ASB ...	18.0	No variation recorded			
PSB ...	23.25 ± 0.75	1.50 ± 0.53	18.75—23.75	21.0—24.0	6.4
SD ...	41.25 ± 0.75	1.50 ± 0.53	36.75—45.75	39.0—42.0	3.6
A-P ...	19.5 ± 0.87	1.73 ± 0.61	14.3—24.7	18.0—21.0	8.8
AM ...	24.0	No variation recorded			
AL ...	25.5 ± 0.87	1.73 ± 0.61	20.3—30.7	24.0—27.0	6.8
PL ...	27.0	No variation recorded			
Sens. ...	47.0 ± 1.0	1.73 ± 0.71	41.8—52.2	45.0—48.0	3.7

Loc.—This species is described from four specimens from *Gymnodactylus louisidensis* from Sansapor, Dutch New Guinea (G. M. K., Sansapor, No. 3, 26 Aug. 1944).

Remarks.—In the pentagonal scutum this species would fall into Sig Thor's subgenus *Pentagonella* 1935, but the bifurcate palpal claw puts it into Ewing's *Eutrombicula* 1938, and the number of dorsal setae into *Ascariscus* Ewing 1943. We concur, however, with Michener 1946 (*Annals. Ent. Soc. America*, 29, (1), 101-118, in regarding *Ascariscus* as a synonym of *Eutrombicula*.

The type and one paratype in the South Australian Museum, and two paratypes in the U.S. National Museum.

Genus *Novotrombicula* nov.

Larvae.—As in *Trombicula* Berl. s.l., with the dorsal scutum furnished with paired filamentous sensillae and the usual five setae (one AM, two AL, and two PL), but produced posteriorly and tongue-like, so as to include, in addition to the above, some of the median setae of some of the dorsal rows as in the genus *Gahrhirsia*.

Genotype *Novotrombicula owiensis* n. sp.

Novotrombicula owiensis n. sp.

Fig. 2 A-H

Description of Larvae.—Shape subrotund. Size small; length (unfed) 255μ , width 180μ . Dorsal scutum large, tongue-shaped and produced posteriorly to take in the two median setae of the third dorsal row, in addition to the AM, AL and PL setae; sensillae long and filamentous with ciliations on the distal half, bases wide apart and about midway between lines of AL and PL. Eyes $2+2$, on distinct ocular shields placed close to the lateral scutal margin; posterior eyes the smaller. Chelicera with only the usual apical tricuspid cap, but on the inner margin below the cap with a rather prominent subapical angle. Galeal setae long and nude. Palpi rather slender, with rather long slender and bifurcate tibial claw, the dorsal prong of which is small and indistinct; palpal femur and genu with a long slender, shortly ciliated seta; all three setae on tibia long and apparently nude; tarsi moderately long and conical, with a long subbasal sensory rod and five or six long ciliated setae.

Dorsal setae rather thick, slightly tapering, shortly ciliated and of two sizes, arranged 2.4.4|2|.4.2.2; the second row with the medial pair just off the scutum and to $57\ \mu$ long; the inner members of the third row are on the scutum and are

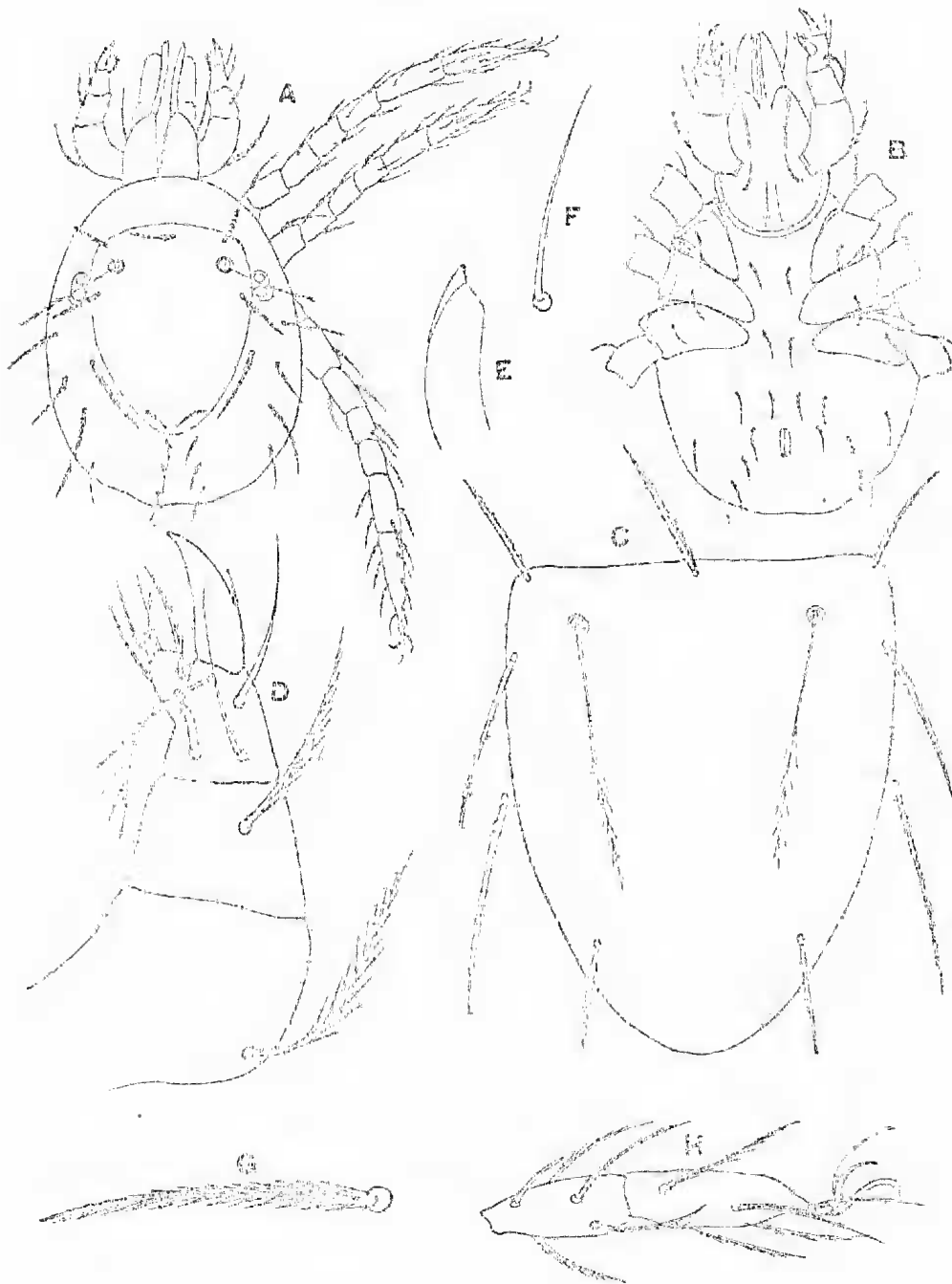


Fig 2 *Novotrombicula owiensis* n.g. and n.sp. A, dorsal view; B, ventral view; C, dorsal scutum ($\times 500$); D, palp in dorsal view ($\times 860$); E, tip of chelicera ($\times 860$); F, galeal seta; G, dorsal seta ($\times 860$); H, tarsus and metatarsus III ($\times 450$).

short to $24\ \mu$. Ventrally with a pair of branched or ciliated setae on the gnathosoma, one on each coxa, a pair between coxae I and between coxae III and thereafter 6.2.2.2.2. to $24\ \mu$ long. All three pairs of coxae touching. Legs: I $255\ \mu$ long, II $240\ \mu$, III $275\ \mu$; tarsi I and II with the usual sensory rod-like seta, III without any long nude seta.

The Standard Data in microns for type and two paratypes are:

	Mean	Standard Deviation	Theoretical Range	Observed Range	Coeff. of Variation
AW	89.3 ± 1.20	2.08 ± 0.85	83.1—95.5	87.0—91.0	2.3
PW	95.5 ± 1.33	2.31 ± 0.94	88.0—102.2	94.0—98.0	2.4
SB	61.0 ± 1.00	1.73 ± 0.71	55.8—66.2	60.0—63.0	2.8
ASB	16.0 ± 1.0	1.73 ± 0.71	10.8—21.2	15.0—18.0	10.9
PSB	112.0	No variation recorded			
SD	128.0 ± 1.00	1.73 ± 0.71	122.8—133.2	127.0—130.0	1.3
A-P	20.7 ± 0.31	0.54 ± 0.22	19.1—22.3	20.0—21.0	2.6
AM	40.3 ± 0.88	1.53 ± 0.62	35.7—44.7	39.0—42.0	3.8
AL	50.0	No variation recorded			
PL	45.0	No variation recorded			
Sens.	67.0 ± 1.0	1.73 ± 0.71	61.8—72.2	66.0—69.0	2.6

Loc.—Six specimens collected from the soil at the base of a large tree on Owi Island, North Coast of Dutch New Guinea, 15 Aug. 1944 (G. M. K., Owi 22 C.).

Remarks.—But for the prolongation of the dorsal scutum to include some of the medial dorsal setae, this interesting species would fall into *Trombicula* s.l. The form of the scutum, however, is parallel to that found in the genus *Gahrlepiea* of the group of genera with clavate sensillae and justifies the erection of a new genus.

The type and two paratypes in the South Australian Museum, three paratypes in the collection of the Rocky Mountain Laboratory.

Schongastia philipi n. sp.

Fig. 3 A-G

Description of Larvae.—Shape an elongate oval. Length (unfed) $236\ \mu$, width $182\ \mu$. Scutum more or less hexagonal, with the posterior margin 3-sided and deep behind line of PL with a slight concavity medially; AM seta very much shorter than AL and PL, AL the longest; sensillae more capitate than clavate with their bases in line with PL. Eyes $2 + 2$, apparently not on ocular shields, the posterior eyes the smaller. Chelicerae not unusually slender, with apical tricuspid cap and on the inner (dorsal) margin with three to four strong and some smaller teeth. Galkal setae nude. Palpi stout, with trifurcate tibial claw; seta on palpal femur ciliated or branched; on genu nude; on tibia dorsal and lateral nude, ventral branched; tarsus short, with basal and subapical sensory rods and several ciliated setae.

Dorsal setae $36-40\ \mu$ long, ciliated, 28 in number and arranged 2.8.6.6.4.2. Ventrally with paired branched setae on gnathosoma, a ciliated seta on each coxa, a pair between coxae I and between coxae III, and thereafter 4.6.6.6.2.2. to $25\ \mu$ long. Legs: I $256\ \mu$ long, II $228\ \mu$, III $256\ \mu$; tarsi I and II with dorsal sensory rod, III with a long nude seta arising subbasally and dorsally.

The Standard Data for type and four paratypes are:

	Mean	Standard Deviation	Theoretical Range	Observed Range	Coeff. of Variation
AW	48.6±1.12	2.51±0.80	41.1-56.1	45.0-51.0	5.1
PW	69.6±0.40	0.89±0.28	66.9-72.3	68.0-70.0	1.3
SB	18.4±0.40	0.89±0.28	15.7-21.1	18.0-20.0	4.8
ASB	24.0	No variation recorded			
PSB	21.0	No variation recorded			
SD	45.0	No variation recorded			
A-P	23.6±0.40	0.89±0.28	20.9-26.3	22.0-24.0	3.8
AM	22.2±0.73	1.64±0.52	17.3-27.1	21.0-24.0	7.4
AL	59.2±0.49	1.04±0.34	55.9-62.5	58.0-60.0	1.8
PL	42.6±1.12	2.51±0.79	35.1-50.1	39.0-45.0	5.9
Sens.	30.0	with head 15/18			

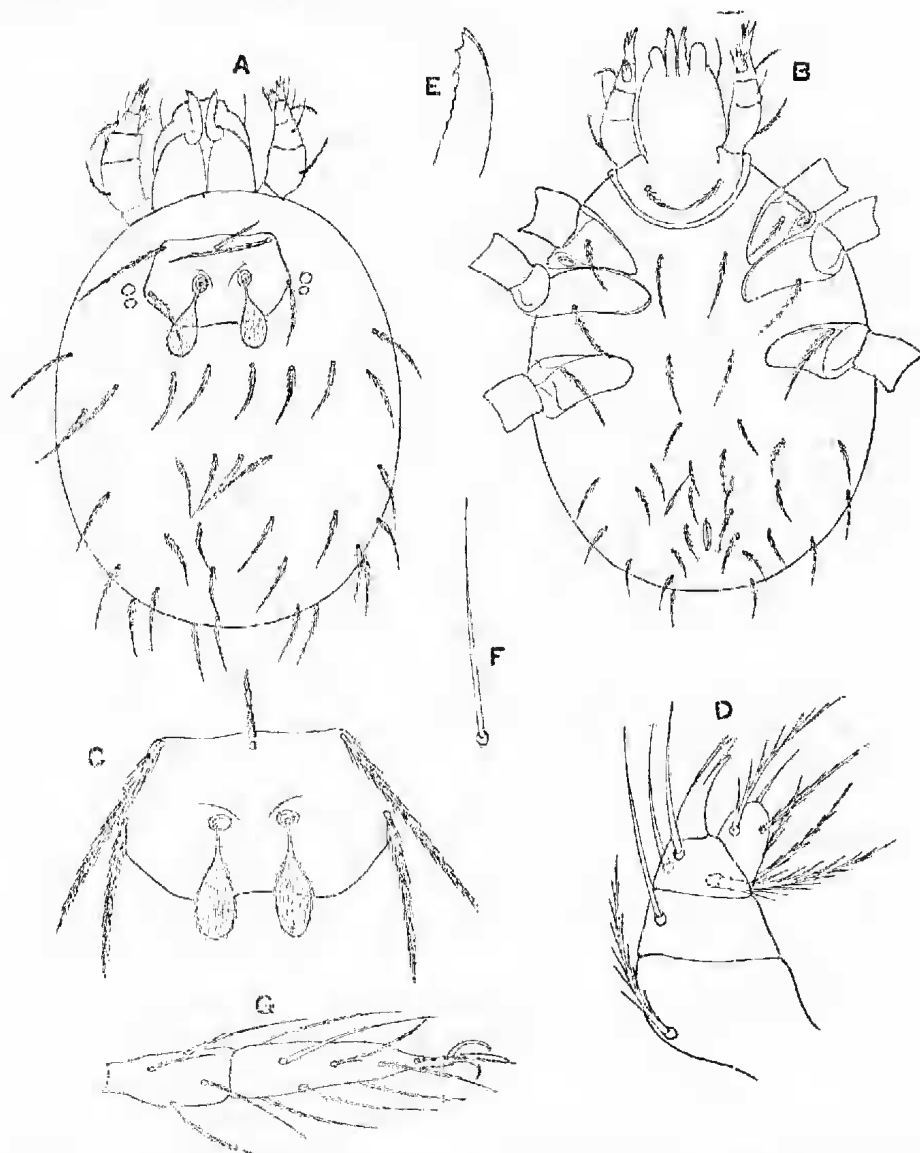


Fig. 3 *Schöngastia philipi* n. sp. A, dorsal view; B, ventral view; C, dorsal scutum (x500); D, palp in dorsal view (x860); E, tip of chelicera (x860); F, galeal seta; G, tarsus and metatarsus III (x450).

Loc.—Type and nine paratypes from a lizard *Leiolepis albertisii* from Goodenough Island, New Guinea, 17 Jan. 1944 (G. M. K., No. 486).

Remarks—The dentition of the chelicerae in this species is somewhat different from the many small teeth found in other species of *Schöngastia*, but this is not sufficient to warrant generic separation.

The type and four paratypes in the South Australian Museum, and one paratype to be deposited in the British Museum; one paratype to be deposited in the U.S. National Museum and in the Rocky Mountain Laboratory.

Genus *Oenoschongastia* nov.

Allied to *Schöngastia* but the chelicerae are short, curved and stumpy with the apex divided into two terminal blunt and thick teeth, with a pair (sometimes three) of rather smaller teeth subapically. Palpal claw short and stout, trifurcate. Median tarsal claw (empodium) longer than the laterals but equally thick. Sensillae clavate or capitate.

Oenoschongastia cana n.sp.

Fig. 4 A-G

Description of Larvae—Shape an elongate oval. Length (unfed) 252 μ , width 162 μ . Dorsal scutum roughly hexagonal with indistinct and fine pitting; with the usual five normal ciliated setae, of which AL are the longest and AM the shortest, AM with short branches, AL and PL with long outstanding branches; sensillae broadly clavate, the head indistinctly and very shortly setulose, sensillae bases about in line with PL; anterior scutal margin convex, posterior laterally angular. Eyes 2+2, large, on well-developed ocular shields and closely adjacent to scutum, posterior eyes the smaller. Chelicerae of peculiar form, short, stout and curved, apex truncate and divided into two strong, broad and blunt teeth, and two (sometimes three) smaller teeth placed subapically on the inner edge. Galeal setae nude. Palpi stout, tibial claw short, stout and trifurcate; femur with a long strong seta with long branches; genu with a nude seta; tibia with the dorsal and lateral setae nude, ventral branched; tarsi short with basal and subapical sensory rods and three or four ciliated or branched setae. Dorsal setae strong with strong ciliations, 36 in number and arranged 2.8.10.6.6.4., to 40-50 μ long. Ventrally with the usual pair of branched setae on gnathosoma, a single seta on each coxa, a pair between coxae I and between coxae III, and thereafter 6.6.6.4.2, more slender and with longer ciliations than the dorsal setae, to 30 μ long. Legs: I 324 μ long, II 252 μ , III 380 μ ; tarsi I and II with the usual dorsal rod-like setae, tarsi III with a long outstanding nude seta*; median claw (empodium) longer than but as thick as the laterals.

The Standard Data in microns derived from 22 specimens are:

	Mean	Standard Deviation	Theoretical Range	Observed Range	Coeff. of Variation
NW	62.85 \pm 0.56	2.65 \pm 0.40	54.9-70.8	60.0-69.0	4.2
PW	78.7 \pm 0.71	3.34 \pm 0.50	63.7-88.7	75.0-87.0	4.2
SB	31.85 \pm 0.49	2.30 \pm 0.35	24.95-38.75	30.0-39.0	7.2
ASD	28.9 \pm 0.33	1.53 \pm 0.23	24.3-33.5	27.0-32.0	5.3
TSB	23.8 \pm 0.30	1.38 \pm 0.21	19.6-28.0	21.0-27.0	5.8
SD	52.8 \pm 0.45	2.11 \pm 0.32	46.5-59.1	48.0-57.0	4.0
A-2	29.2 \pm 0.32	1.50 \pm 0.23	24.7-33.7	27.0-33.0	5.2
AM	32.45 \pm 0.46	2.15 \pm 0.32	25.0-38.9	27.0-35.0	6.6
AL	74.3 \pm 0.50	2.34 \pm 0.35	67.3-81.3	70.0-80.0	3.0
PL	59.5 \pm 0.39	1.84 \pm 0.28	51.0-65.0	55.0-65.0	3.1
Sens.	36.0	with head 26/34			

* Unfortunately omitted from fig. 4 G.

Loc.—The type and 72 paratypes from the mound of a brush turkey, Dobodura, New Guinea, 18 May 1944 (G. M. K., No. 325).

The type and 22 paratype deposited in the South Australian Museum, 35 paratypes in the collection of the Rocky Mountain Laboratory, five paratypes in the U.S. National Museum and five in the British Museum.

Remarks.—This genus and species in the peculiar and characteristic chelicerae and the palpal claw is very distinct from *Schöngastia*, *Neoschöngastia* and *Ascuschöngastia*.

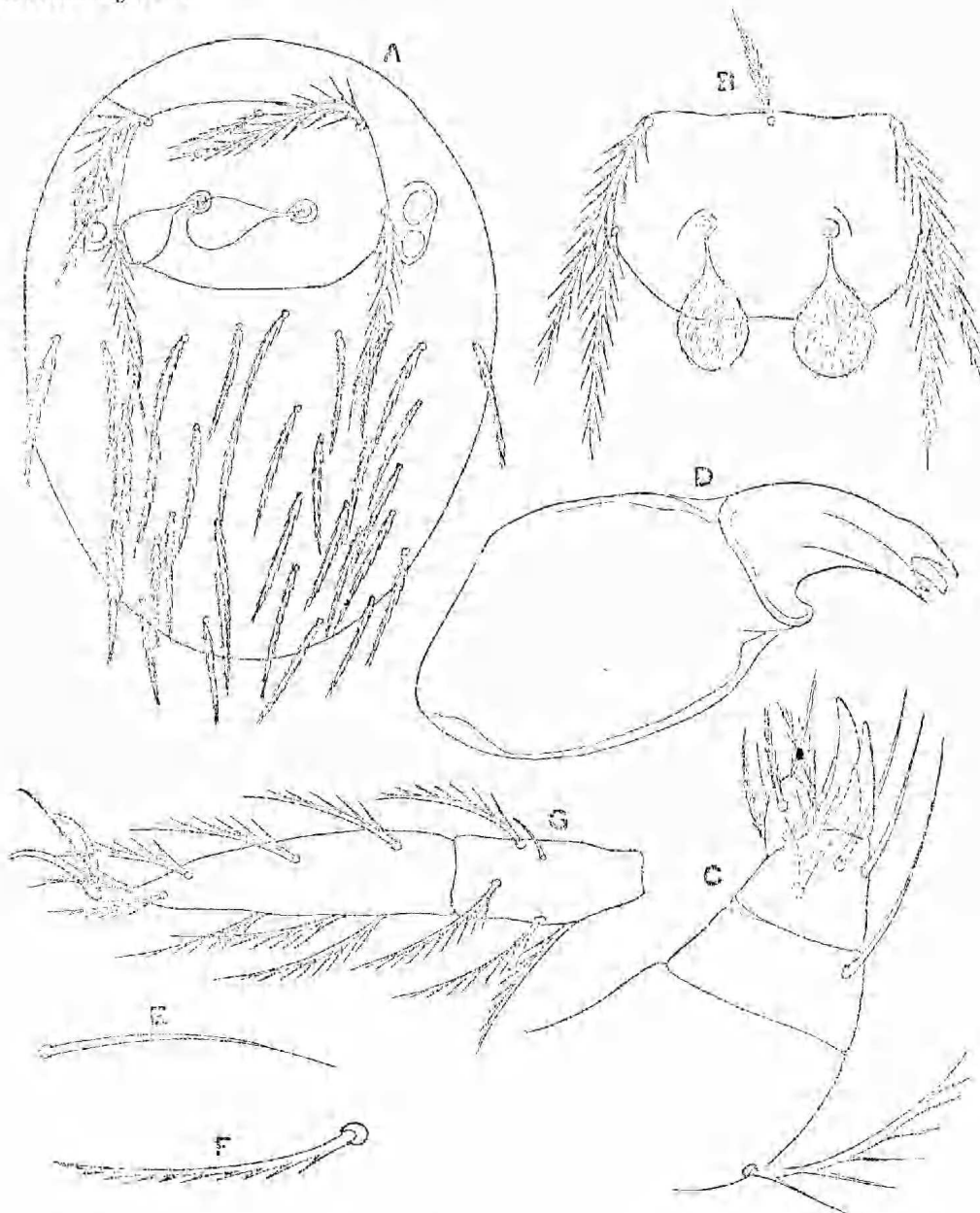


Fig. 4 *Qenoschöngastia cana* n.g. and n.sp. A, dorsal view; B, dorsal scutum (x500); C, palp in dorsal view (x860); D, chelicera (x860); E, galeal seta; F, dorsal seta (x860); G, tarsus and metatarsus III (x450).

Ascoschöngastia ⁽²⁾ *uromys* n. sp.

Fig. 5 A-F

Description of Larvae — Shape oval. Length (unengorged) 300μ , width 200μ . Scutum roughly rectangular with fairly well produced posterior margin, AM short and normally ciliated, AL and PL lanceolate or foliate, to 16μ wide,

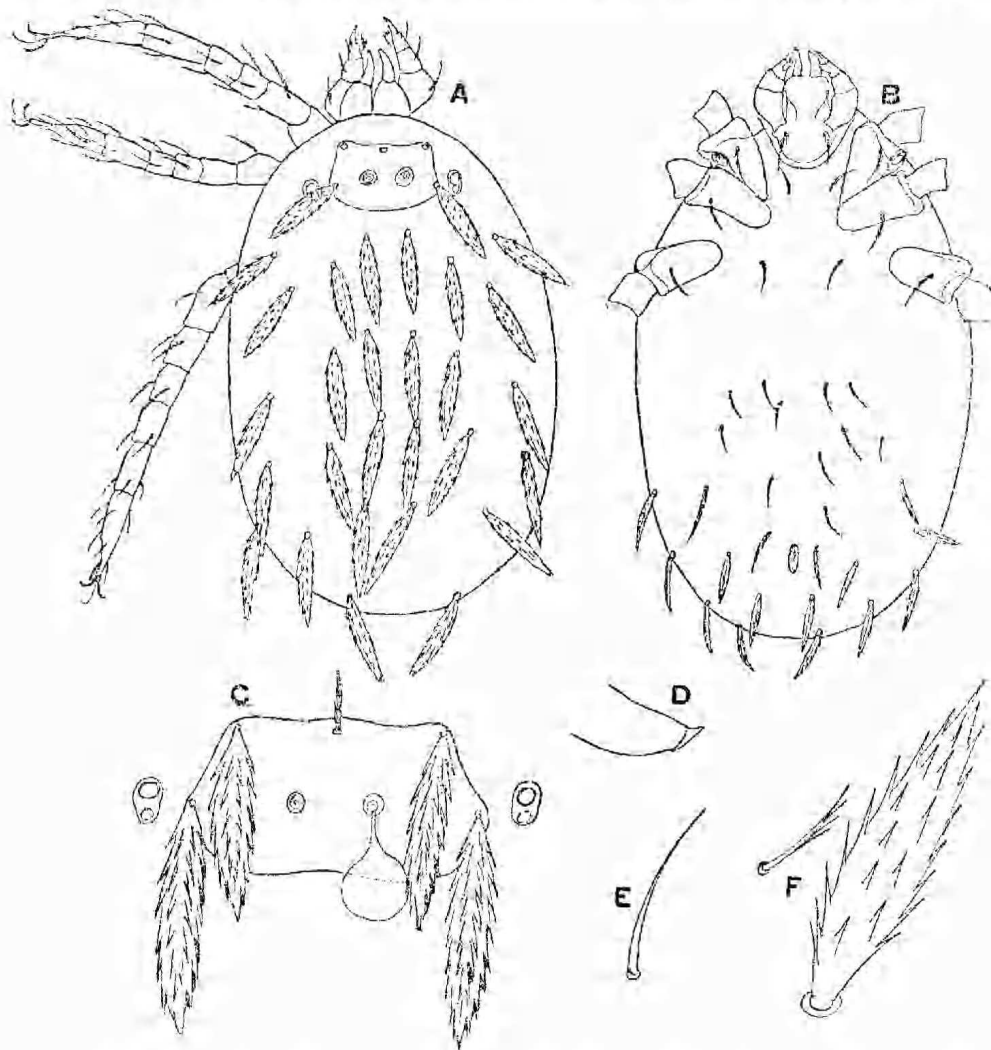


Fig. 5 *Ascoschöngastia uromys* n. sp. A, dorsal view; B, ventral view; C, dorsal scutum (x500); D, tip of chelicera (x860); E, galeal seta; F, dorsal and ventral setae (x860).

with longitudinal rows of strong dentures. Sensillae globose, apparently nude, with their bases only slightly in advance of line of PL. Eyes $2 + 2$, on distinct ocular shields; posterior the smaller. Chelicerae with only the usual apical tricuspid

⁽²⁾ Ewing (Proc. Biol. Soc. Washington, 59, 1946, p. 70-71) has recently shown that the genus *Paraschöngastia* Wem. is synonymous with *Neoschöngastia* Ewing 1929 (genotype *N. americana*), and for the remainder of the species of *Neoschöngastia* not conspecific with *americana* has proposed the name of *Ascoschöngastia* with *N. malayensis* Gater as genotype. The choice of this species as genotype is, however, somewhat unfortunate, as it is a rather aberrant species with PL distinctly off the scutum.

cap. Galeal setae nude. Palpi fairly stout, with bifurcate tibial claw. Setae on palpal femur, genu and tarsi apparently all nude. Dorsal setae all foliate or lanceolate with strong dentures (cf. fig. 5 D), to 64μ long and 16μ wide, 28 in number, and arranged 2.6.6.6.6.2. Ventrally with usual pair of branched setae on gnathosoma, a single ciliated seta on each coxa, a pair between coxae I and between coxae III, and thereafter 5.6.6, anterior of anus, and of which the outer two of the second six approach the dorsal setae in form; then posterior of anus 4.2, foliate and dentate as on dorsum; the anterior non-foliate ventral setae to 20μ long. Legs: I 270μ long, II 220μ , III 270μ ; tarsi I and II with the usual dorsal sensory rod, III without any long nude seta.

The Standard Data derived from the type and seven paratypes are as follows:

	Mean	Standard Deviation	Theoretical Range	Observed Range	Coeff. of Variation
AW	50.6 ± 1.74	4.92 ± 1.23	35.8–65.4	43.0–60.4	9.7
PW	69.5 ± 0.71	2.00 ± 0.50	63.5–75.5	66.0–75.0	2.9
SB	12.6 ± 0.50	1.41 ± 0.35	14.8–23.2	18.0–21.0	7.4
ASB	21.0	No variation recorded			
PSB ..	18.0	No variation recorded			
SD	39.0	No variation recorded			
A-P	21.6 ± 0.42	1.19 ± 0.30	18.0–25.2	21.0–24.0	5.5
AM	16.5 ± 0.67	1.64 ± 0.47	11.6–21.4	15.0–18.0	9.9
AL	49.5 ± 0.67	1.64 ± 0.47	44.6–54.4	48.0–51.0	3.3
PL	60.0 ± 0.57	1.60 ± 0.40	55.2–64.8	57.0–63.0	2.7
Sens.	28.0	with head 17/17. Only one determination			

Loc.—The type and seven paratypes from *Uromys lamington* from Dobodura, New Guinea, 16 May 1944 (No. 315, G. M. K.).

The type and two paratypes in the South Australian Museum, three paratypes in the Rocky Mountain Laboratory, one paratype each in the U.S. National Museum, and the British Museum (N. II.).

Remarks.—This species falls into the small group with foliate scutal and dorsal setae comprising *A. hastata* (Gater.), *maccullochi* (Wom.), *foliata* (Günther) and another species at present unpublished.

It is close to *maccullochi* but can be distinguished by the different number and arrangement of the dorsal and ventral setae, and by the dentations of the setae, although strong, being nowhere so large as in *maccullochi*.

Ascoschongastia echymipera n. sp.

Fig. 6 A-C

Description of Larvae.—Shape oval. Length (engorged) to 460μ , width to 350μ . Scutum roughly rectangular, rather small, and fairly long, with the posterior margin very shallow behind PL and lightly sinuous; AM the shortest, AL the longest but only a little longer than PL. Sensillae globose with short distinct ciliations; the sensillae bases about midway between AL and PL. Eyes 2+2, on distinct ocular shields and well separated from scutal margin; the posterior eyes very much the smaller. Chelicerae with only the apical trienspid cap. Galeal setae nude. Palpi stout, tibial claw trifurcate; setae on palpal femur and genu branched, on tibia all three nude. DS 34–38 in number, arranged 2.8.6.6.6.4.5(2).2(0), to 30μ long. Ventrally with a pair of branched setae on

gnathosoma, a single ciliated seta on each coxa, a pair between coxae I and between coxae III, and thereafter ca. 6.6.6.4.4.4.2. to 26μ long. Legs: I 213μ long, II 186μ , III 226μ ; tarsi I and II with the usual dorsal sensory rod, III without any long nude seta.

The Standard Data from the type and 12 paratypes and three other specimens are:

	Mean	Standard Deviation	Theoretical Range	Observed Range	Coeff. of Variation
AW	45.3 ± 0.29	1.16 ± 0.20	41.8—48.8	43.0—48.0	2.5
FW	61.5 ± 0.53	2.12 ± 0.37	55.1—67.9	57.0—66.0	3.4
SB	20.4 ± 0.39	1.17 ± 0.21	16.0—23.0	18.0—21.0	5.7
ASD	21.0	No variation recorded			
FSB	15.0	No variation recorded			
SD	36.0	No variation recorded			
AL-P	31.3 ± 0.37	1.49 ± 0.25	26.8—35.8	30.0—33.0	4.7
AM	26.6 ± 0.36	1.45 ± 0.26	22.2—31.0	24.0—30.0	5.6
AL	46.5 ± 0.59	2.37 ± 0.42	39.4—53.6	42.0—51.0	5.1
PL	42.6 ± 0.36	1.45 ± 0.25	36.2—47.0	40.0—45.0	3.4
Setae	27.0	with head 17/17. No variation recorded			

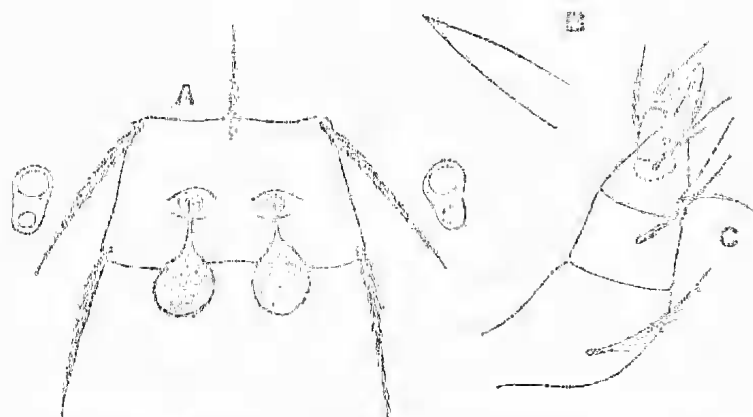


Fig. 6 *Ascoshöngastia echynipera* n. sp. A, dorsal scutum (x500); B, tip of chelicera (x860); C, palp in dorsal view (x860).

Loc.—The type and 12 paratypes from *Echynipera cockerelli* from Dobudura, New Guinea, 29 Nov. 1943 (No. 46, G. M. K.), and another paratype from same host, locality and date (No. 48, G. M. K.); also two other specimens from same host and locality, 8 Dec. 1943 (No. 77, G. M. K.) 10 Dec. 1943 (No. 81, G. M. K.).

The type and four paratypes in the South Australian Museum, two paratypes each in the U.S. Nat. Museum and the British Museum (N. H.); remaining specimens in the Rocky Mountain Laboratory.

Remarks.—In a new key to the species of *Ascoshöngastia* in preparation, *echynipera* will run down close to *coorongense* Hirst and *immsfallensis* Wom. and Heasp., but is easily distinguished by the scutum and the number and arrangement of the DS.